

7/6/23, 3:04 PM

Rock rip-rap location



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Rock rip-rap location

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41'

Rock rip-rap location



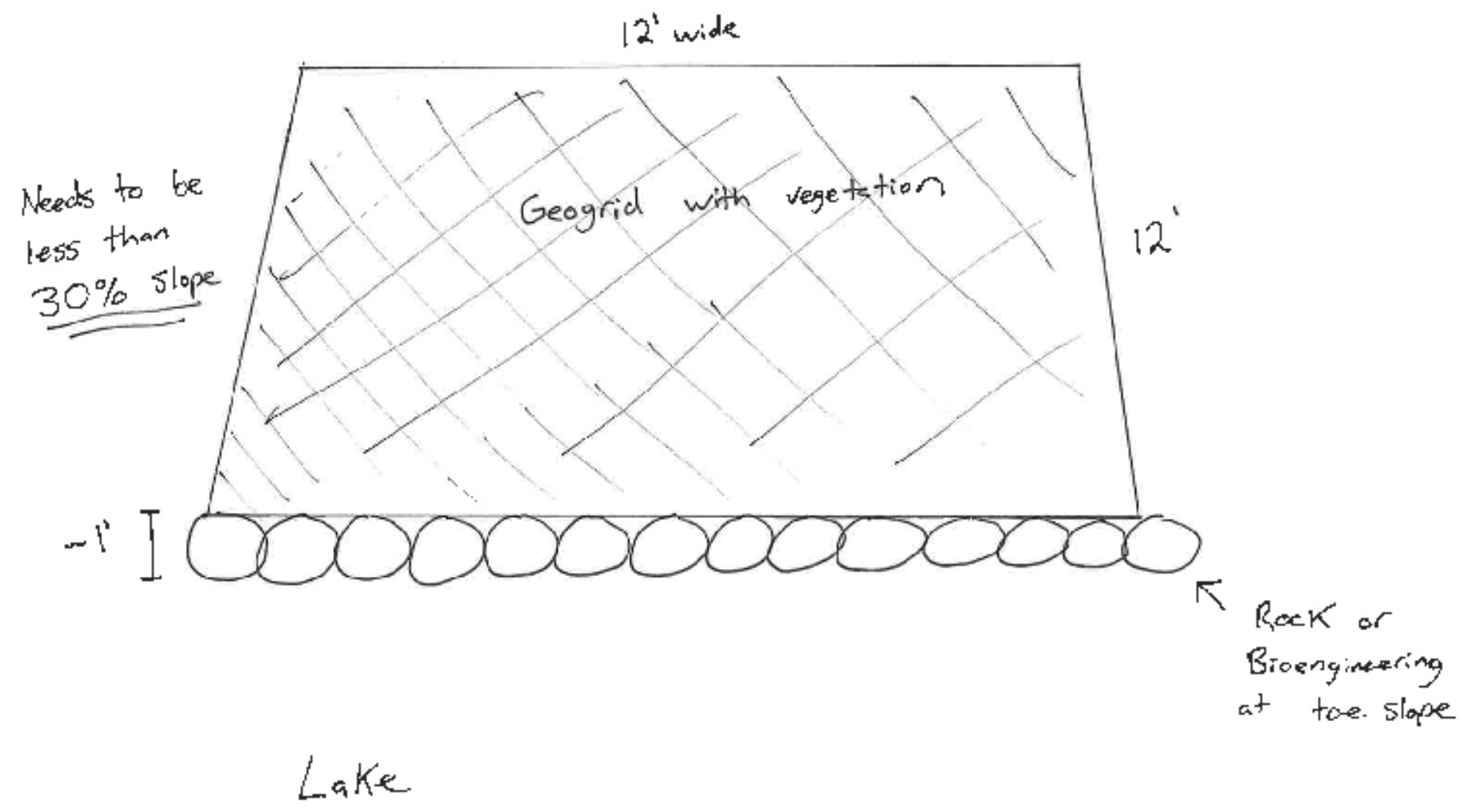
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Recreational use area grading


12'



Recreational use area grading



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Bioengineering erosion control (ex. Coir logs, willow wattles...etc)

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34'

Rock rip-rap location



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Bioengineering erosion control (ex. Coir logs, willow wattles...etc)



MN DNR Rip-rap standards

Shoreline Alterations: Riprap

Installation of riprap is allowed only where there is a demonstrated need to stop existing erosion or to restore an eroded shoreline. An individual DNR Public Waters Work Permit is *not* required if the installation meets all of the following conditions:

- The riprap must not cover emergent aquatic vegetation, unless authorized by an aquatic plant management permit from the DNR's Division of Fisheries.
- Only natural rock (cannot average less than 6 inches or more than 30 inches in diameter) may be used that is free of debris that may cause pollution or siltation. Concrete is not allowed.
- A filter of crushed rock, gravel, or filter fabric material must be placed underneath the rock.
- The riprap must be no more than 6 feet waterward of the ordinary high-water level (OHWL; see sidebar on page 1).
- The riprap must conform to the natural alignment of shore and must not obstruct navigation or the flow of water.
- The minimum finished slope waterward of the OHWL must be no steeper than 3 to 1 (horizontal to vertical).
- The riprapped area must be no more than 200 linear feet of shoreline along lakes and wetlands or, along shorelines of streams, must be less than five times the average width of the affected watercourse.
- The site must not be a posted fish spawning area, designated trout stream, or along the shore of Lake Superior.

